

PATENT COOPERATION TREATY

From the:
INTERNATIONAL SEARCHING AUTHORITY

REC'D 08 DEC 2004

WIPO PCT

PCT

To:

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing (day/month/year) - 3 DEC 2004

Applicant's or agent's file reference
P17/UTM/Soh

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/SG2004/000358

International filing date (day/month/year)
1 November 2004

Priority date (day/month/year)
10 November 2003

International Patent Classification (IPC) or both national classification and IPC
Int. Cl.⁷ C01B 33/14, 33/152, 33/157

Applicant
UNIVERSITI TEKNOLOGI MALAYSIA et al

1. This opinion contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|--|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the opinion |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the IPEA/AU
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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/SG2004/000358

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/SG2004/000358

Box No. V **Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	YES
	Claims 1-13	NO
Inventive step (IS)	Claims	YES
	Claims 1-13	NO
Industrial applicability (IA)	Claims 1-13	YES
	Claims	NO

2. Citations and explanations:

The invention is directed to making a silica aerogel by combusting rice husk to form rice husk ash, treating with sodium hydroxide, heating and stirring to form a sodium silicate, reacting with sulfuric acid to form silica in the form of a hydrogel, ageing, displacing water with an alcohol to form an alcogel and finally making the aerogel by supercritical drying.

Documents cited:

- a) Derwent Abstract Accession No. 2004-063165/07 of CN 1449997
- b) Derwent Abstract Accession No. 2002-055571/07 of WO 200185614
- c) WO 2002/066372
- d) Kalapathy et al. "An improved method for production of silica from rice hull ash"
- e) Kalapathy et al. "Silica xerogels from rice hull ash: structure, density and mechanical strength as affected by gelation pH and silica concentration"

Document a) discloses making silicon dioxide aerogel from rice husk ash which includes treating with an alkaline solution, neutralisation with an inorganic acid to make the hydrosol, ageing, treating with an organic solvent and the supercritical CO₂ drying.

Document b) discloses making silica gel from rice husk ash but does not relate to making aerogels.

Document c) discloses making amorphous silica from rice husks by acid hydrolysis with calcination occurring as the last step of the process.

Documents d) and e) relate to making silica xerogels from rice husk ash.

Novelty

Document a) is clearly the most relevant and since it basically discloses the identical process of the present invention it takes away the novelty of claims 1-13. Documents b) to e) show that rice husk ash is a well known starting material for making various silica products but these documents are not specific to aerogels

Inventive Step

As above for novelty